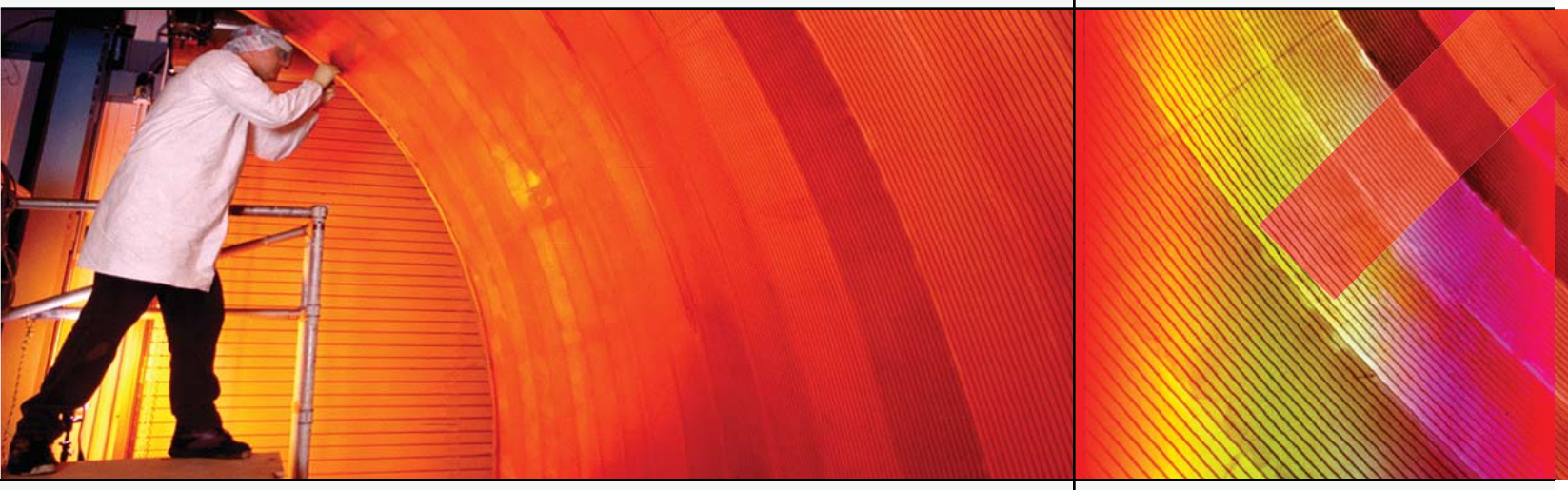
PORTA ONE

Porta Billing 100™



Installation Guide

Maintenance Release 16

www.portaone.com

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Maintenance Release 16
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Please address your comments and suggestions to: Sales Department, PortaOne, Inc. Suite #400, 2963 Glen Drive, Coquitlam BC V3B 2P7 Canada.

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Preface

This document provides a general overview of the PortaBilling100 installation process.

Where to Get the Latest Version of This Guide

The hard copy of this guide is updated at major releases only, and does not always contain the latest material on enhancements occurring between minor releases. The online copy of this guide is always up to date, and integrates the latest changes to the product. You can access the latest copy of this guide at: **www.portaone.com/support/documentation/**

Conventions

This publication uses the following conventions:

- Commands and keywords are given in **boldface**
- Terminal sessions, console screens, or system file names are displayed in `fixed width font`

Caution indicates that the described action might result in program malfunction or data loss.

NOTE: Notes contain helpful suggestions about or references to materials not contained in this manual.

Timesaver means that you can save time by performing the action described in the paragraph.

Tips provide information that might help you solve a problem.

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1. Introduction

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PortaBilling can potentially run on most modern UNIX operating systems, assuming these are equipped with such basic items as an ANSI C compiler. However, it might be difficult for an inexperienced system administrator to install and configure the operating system in such a way as to meet all the requirements and provide the best performance. Installing all the prerequisite software (libraries, Perl modules, MySQL server) might also be a time-consuming task, with a high risk of making some hard-to-trace error.

The PortaBilling JumpStart installation CD provides a quick and seamless way to perform a complete server installation from scratch, in less than 15 minutes. It contains installation media for FreeBSD 6.3, with all the necessary packages and PortaBilling itself. The standardized installation procedure also simplifies further system maintenance.

The installation wizard makes use of a text-mode GUI. Use the arrow keys to change your selection, **Tab** to move between fields, and **Enter** to confirm a choice.

Hardware and Software Requirements

NOTE: If you wish to perform testing to determine whether PortaSwitch can be installed on a specific server, please use the "Hardware Compatibility" CD provided by PortaOne.

You can download the CD image from:
http://portaone.com/resources/hw_test/HardwareCompatibilityCD.iso
Burn it to a CD using any CD-writing program, then boot up from this CD. The PortaSwitch test utility will detect if all of the required components (e.g. network interface) are available and supported by FreeBSD.

Recommended Configuration:

PortaBilling100 Master (Radius, DB, Billing Engine):

- CPU:
  basic configuration: Pentium4, Xeon, Core Duo 3GHz
  advanced configuration: 2xXeon 3GHz (SMP version of PortaBilling100 required)
- SCSI integrated or add-on hardware RAID controller compatible with FreeBSD 6.3
- RAM: 4GB

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- Disks:
  basic configuration: at least 120GB of the available disk space (RAID: mirroring or RAID5)
  advanced configuration: at least 200GB of the available disk space (RAID: mirroring or RAID5), 10K-15K RPM disks or an external disk array
- Network interface
- USB Port
- ATAPI or SCSI CD-ROM drive

PortaBilling100 Slave (redundant DB, Web interfaces, statistics, etc.):

- CPU: Pentium4 2.8GHz (533MHz bus support)
- SCSI integrated or add-on hardware RAID controller compatible with FreeBSD 6.3
- RAM: 4GB
- Disks:
  basic configuration: at least 120GB of the available disk space (RAID: mirroring or RAID5)
  advanced configuration: at least 200GB of the available disk space (RAID: mirroring or RAID5), 10K-15K RPM disks or an external disk array
- Network interface
- USB Port
- ATAPI or SCSI CD-ROM drive

Make sure that your servers are installed and equipped with all the required hardware, in particular:

- Network card
- CD-ROM (in the case of an IDE CD-ROM, it is recommended that it be connected as a slave on the secondary IDE channel)
- Video adapter/monitor/keyboard (required only during the installation process)
- USB slot (on the master server)

Please check that the other hardware installed in your server (such as network adapter, RAID controller, and so on) is supported by FreeBSD. You can check this at the FreeBSD website: **http://www.freebsd.org**.

During installation you will be prompted for the network configuration parameters. Please make a decision regarding these before installation, consulting your network administrator if necessary. It is possible that you will have to perform installation while the network is not yet available

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(from your office, for example, while the servers will be placed in a server hosting center), but you will need to enter the correct data anyway. Please have the following ready:

- Planned hostnames and IP addresses of the master and slave servers
- Subnet mask and address of the default gateway
- DNS server address

If you have a hardware RAID controller in your system, configure the RAID – create a logical RAID entry and allocate the physical drives into it. The recommended configurations (depending on the amount of hard drives in the system) are as follows:

- 2 disks – RAID (mirroring)
- 3 disks – RAID 1 (mirroring) on the first two disks, third one left as a hot spare
- 4 disks – RAID 1+0 (mirroring + striping)
- More than 4 disks – RAID 1+0 (mirroring + striping) on the first four disks, others left as a hot spare

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2. Installation Process

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Step 1: Insert USB Dongle

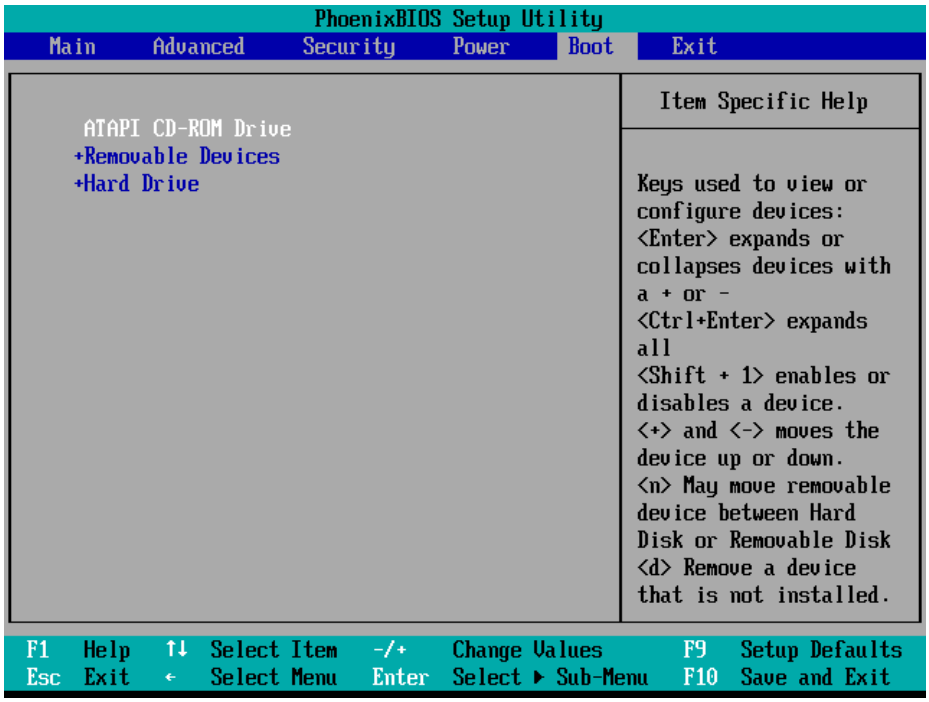
Place the USB dongle key you received with your PortaBilling installation CD into the USB slot on your **master** server. The slave server does not require a dongle.

Step 2: Power-up, Boot Order Setup

Turn on the computer which you plan to use as the server. Enter the BIOS setup and make sure that:

- the CD-ROM is first in the list of boot devices
- USB support is enabled

If you are installing a dual-server configuration, start your installation with the master server.


PhoenixBIOS Setup Utility
Main
Advanced
Security
Power
Boot
Exit
ATAPI CD-ROM Drive
+Removable Devices
+Hard Drive
Item Specific Help
Keys used to view or configure devices:
<Enter> expands or collapses devices with a + or -
<Ctrl+Enter> expands all
<Shift + 1> enables or disables a device.
<+> and <-> moves the device up or down.
<n> May move removable device between Hard Disk or Removable Disk
<d> Remove a device that is not installed.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ← Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit

NOTE: This image is only an example. The BIOS on your system might look different.

Save your changes and exit.

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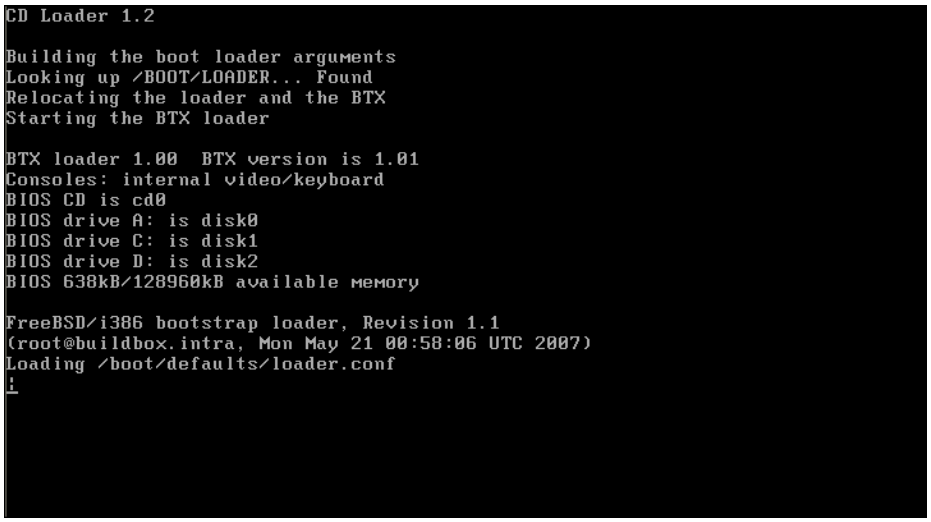
Step 3: Insert CD-ROM

While rebooting the system, insert the PortaBilling installation CD into the CD-ROM drive. If you do not insert it soon enough, and get a "no operating system" error (or a previously installed operating system starts its boot-up process) then press **Reset** and ensure that you are booting from the CD.

Step 4: Launch Installation Process

First, you will be asked to boot from the CD.

You will know that JumpStart installation has begun if you see a screen similar to the following one:


CD Loader 1.2
Building the boot loader arguments
Looking up /BOOT/LOADER... Found
Relocating the loader and the BTX
Starting the BTX loader
BTX loader 1.00 BTX version is 1.01
Consoles: internal video/keyboard
BIOS CD is cd0
BIOS drive A: is disk0
BIOS drive C: is disk1
BIOS drive D: is disk2
BIOS 638kB/128960kB available memory
FreeBSD/i386 bootstrap loader, Revision 1.1
(root@buildbox.intra, Mon May 21 00:58:06 UTC 2007)
Loading /boot/defaults/loader.conf

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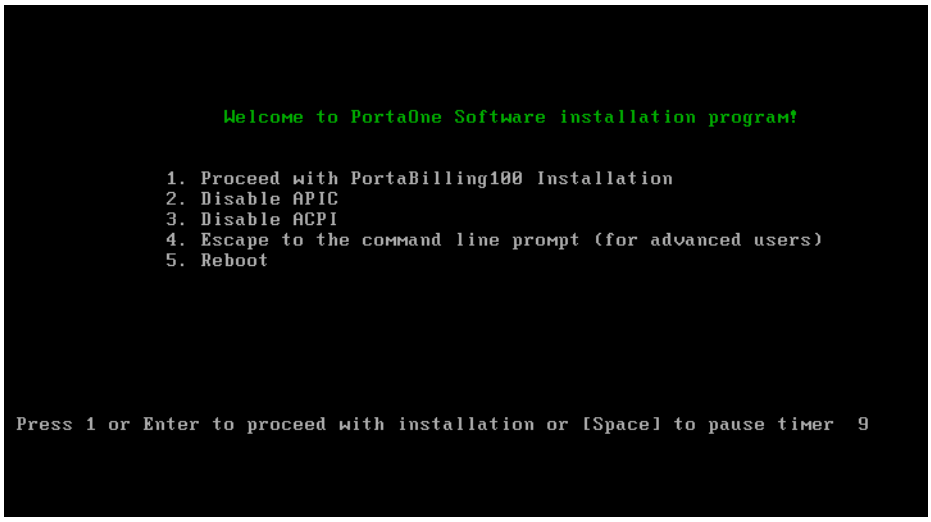
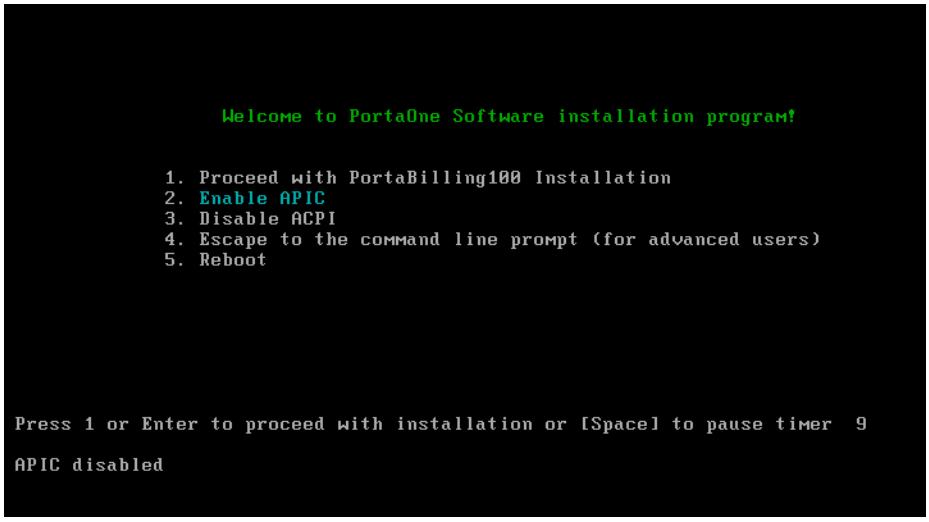
Before proceeding any further, you will see the following screen:


Welcome to PortaOne Software installation program!
1. Proceed with PortaBilling100 Installation
2. Disable APIC
3. Disable ACPI
4. Escape to the command line prompt (for advanced users)
5. Reboot
Press 1 or Enter to proceed with installation or [Space] to pause timer 9

If you select the first option, installation will start in default mode, which is suitable for most hardware configurations. However, in some cases, option 1 will return a device mounting error due to hardware conflicts. In this case, restart installation and, when you see this screen again, select options 2, 3 or both to enable/disable APIC/ACPI features.

For example, if you are installing to a computer with an ASUS P4VP-MX motherboard, you must disable APIC. In this case, select 2 on the screen above. You will then be shown the disabled features and asked to press 1 or Enter to proceed, as shown in the screen below:


Welcome to PortaOne Software installation program!
1. Proceed with PortaBilling100 Installation
2. Enable APIC
3. Disable ACPI
4. Escape to the command line prompt (for advanced users)
5. Reboot
Press 1 or Enter to proceed with installation or [Space] to pause timer 9
APIC disabled

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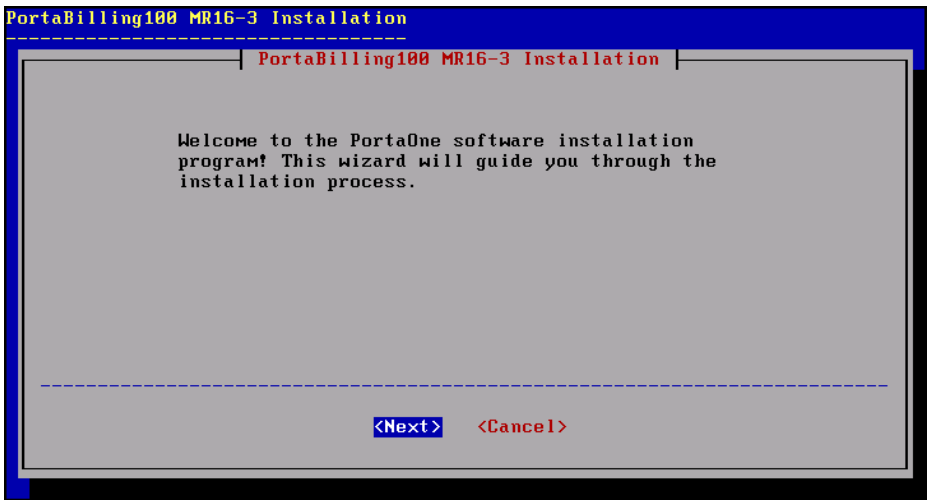
Step 5: Welcome Screen

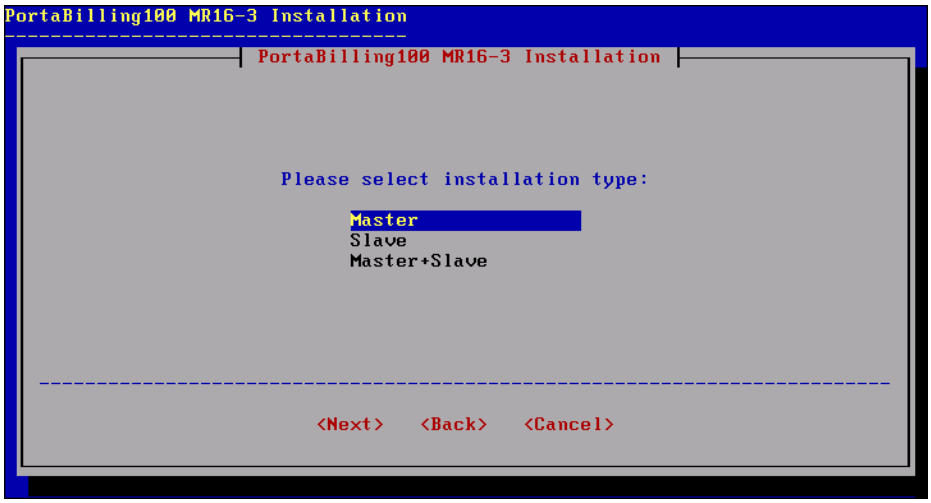
Next, the installation process starts. First you will see the PortaBilling welcome screen:


PortaBilling100 MR16-3 Installation
PortaBilling100 MR16-3 Installation
Welcome to the PortaOne software installation program! This wizard will guide you through the installation process.
<Next>
<Cancel>

Press **Enter** to continue.

Step 6: Choose Installation Type

Next you must choose the installation type. This will determine which packages will be installed on this host. If you are installing a dual-server configuration, it is recommended that you install the master server first.



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Step 7: Hardware Check

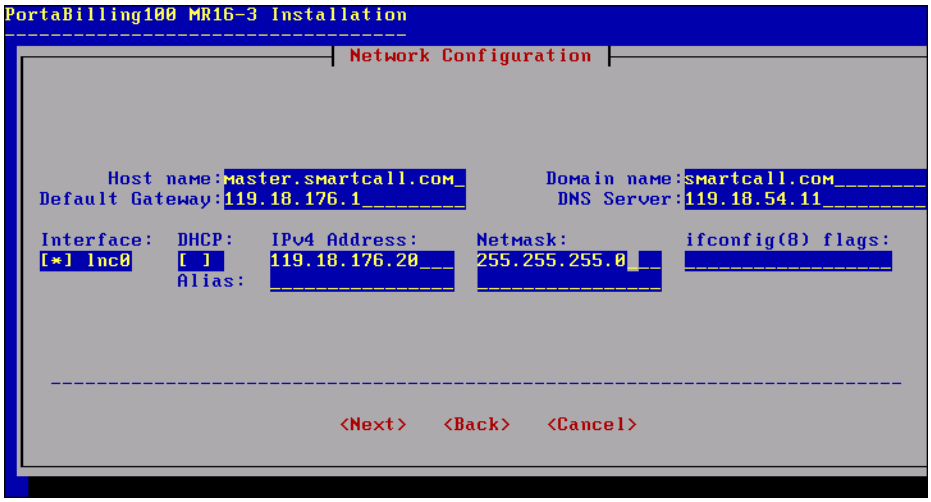
After you have selected the installation type, the system will check your server's hardware components, such as CPU, memory, network card and USB controller.

PortaBilling100 MR16-3 Installation
PortaBilling100 MR16-3 Installation
The server meets the requirements for installing PortaBilling100 Master.
CPU: OK - 1 logical cpu found.
RAM: OK - 4256 MB
HDD(s): OK - da0 (6144 MB)
NIC(s): OK - lnc0
USB controller(s): OK - usb
Comment:
<Next> <Back> <Cancel>

If the hardware test detects a failure, an output message is generated indicating what exactly went wrong when failure occurred.

Step 8: Network Configuration

Fill in the appropriate fields for network configuration in this menu.



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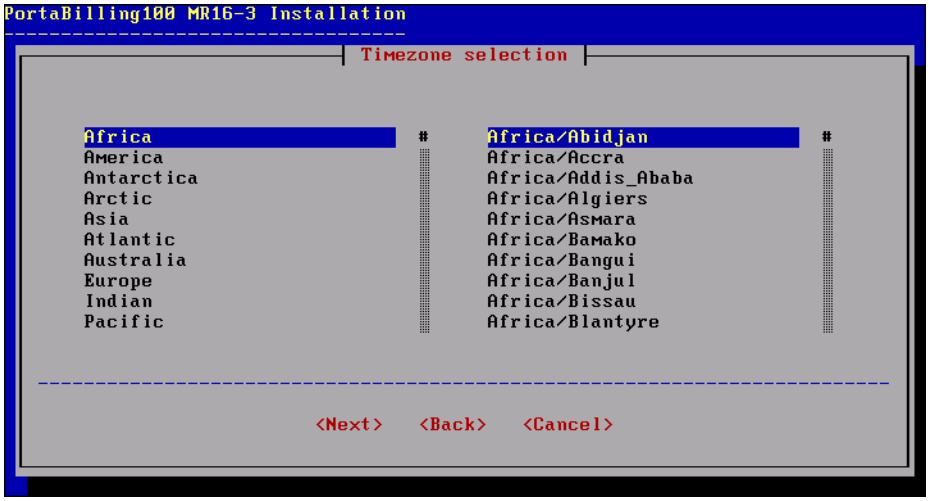
Step 9: Time Zone Configuration

Proper adjustment of your clock and time zone is essential in order to achieve accurate billing. Usually people choose the time zone where the server is physically located, or the one which is local to the majority of system administrators.



NOTE: Always choose the same time zone when installing the master and slave servers. The server time zone set up during installation should not be changed later, as this will affect CDR data stored in the database. In fact, this is never required, since every user of the web interface will see data in his preferred time zone anyway. So it does not matter at all to your users which time zone is on the server.

Step 10: Disk Partitioning: Overview

Now you must allocate the hard drive partitions where FreeBSD and PortaBilling will be installed. If you have only one hard drive in your system, or have configured your available disks as a single volume array, go to step 12 directly. Otherwise, choose the designated disk in step 11.

Step 11: Disk Partitioning: Choose Disk

If you have more than one disk in your system, you will have to choose which disk you would like to create the FreeBSD partitions on. If in doubt, choose the first disk in the list.

NOTE: Installation is always performed on a single disk. If you want to utilize multiple drives (e.g. install the DB on a separate disk), this can be done after installation.

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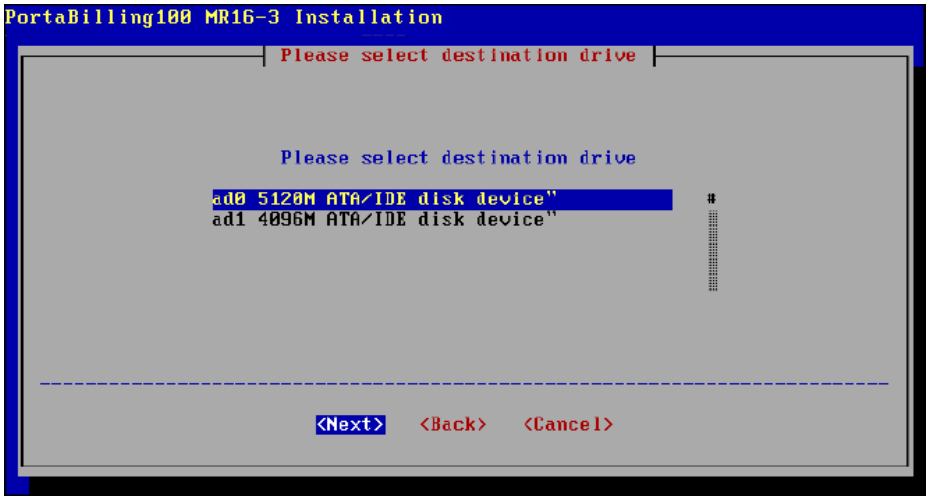
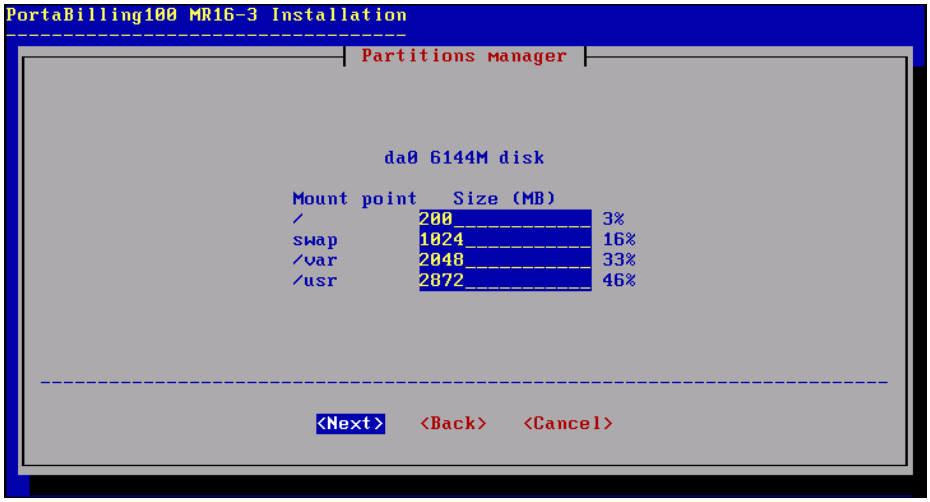


Step 12: Disk Partitioning: Slice Layout

You will be prompted to enter or choose the slice sizes for holding different file systems. The default settings are OK in most cases.



Step 13: Set Up Root Password and User Account

Choosing the super user password is very important, as you will need it to perform system administration or system recovery. Choose a password which is difficult to guess or crack. Add another user account especially for remote administration.

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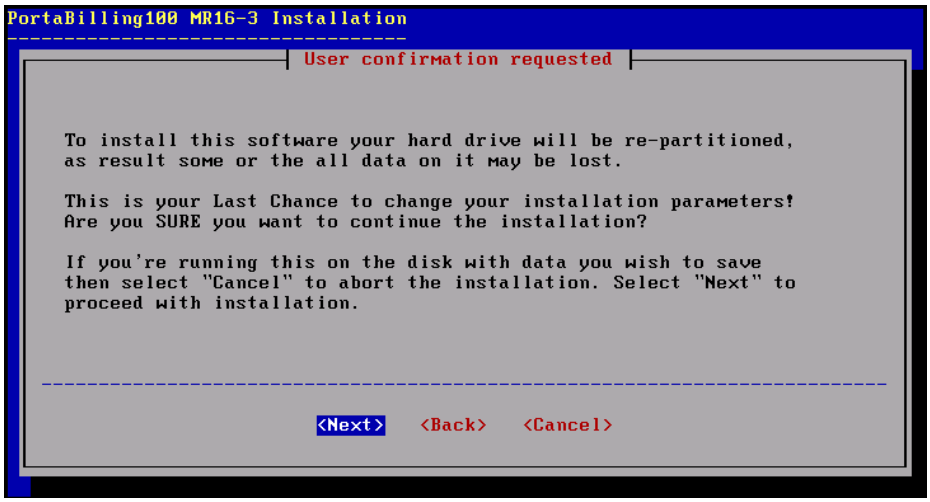
PortaBilling100 MR16-3 Installation
Root password
Now you must set the system manager's password.
This is the password you'll use to log in as "root".
Password: ********
Confirm password: ********
For security reasons user root will not be allowed to access the
machine remotely using ssh. If you want to be able to administer
this machine remotely enter desired username and password below.
If you don't want such feature leave username blank.
Username: p.oneil
Password: **********
Confirm password: **********
<Next> <Back> <Cancel>

Step 14: Start Installation

Your confirmation is required before the disk layout is changed and the partitions reformatted. Press "**Enter**" to proceed.


PortaBilling100 MR16-3 Installation
User confirmation requested
To install this software your hard drive will be re-partitioned,
as result some or the all data on it may be lost.
This is your Last Chance to change your installation parameters!
Are you SURE you want to continue the installation?
If you're running this on the disk with data you wish to save
then select "Cancel" to abort the installation. Select "Next" to
proceed with installation.
<Next> <Back> <Cancel>

During installation you will see a screen similar to the following:

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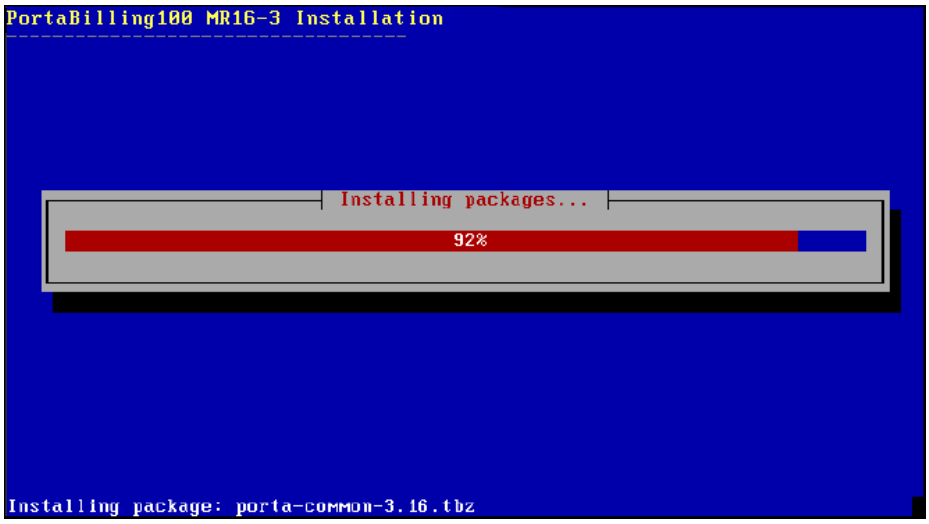
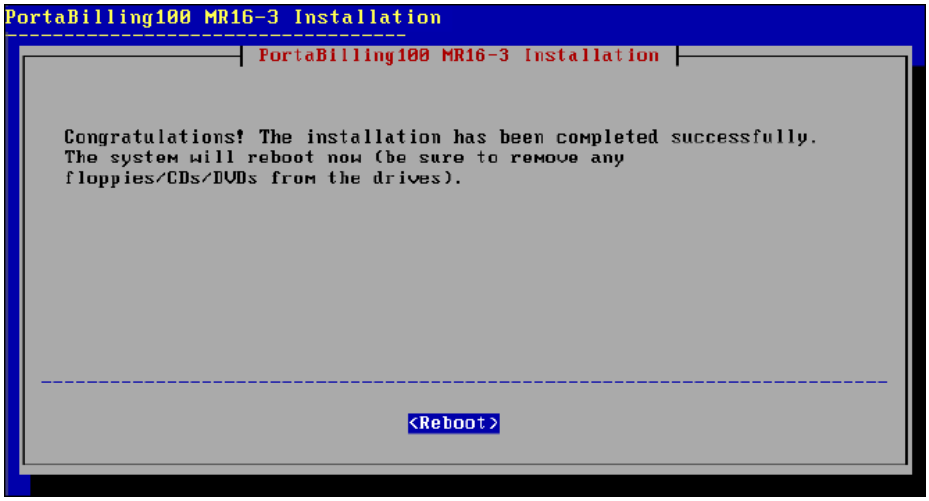


Step 15: Prepare to Reboot

When installation has finished and you reach the following screen, press **Reboot**. After the system has begun its reboot process, remove the installation CD from the CD-ROM.


PortaBilling100 MR16-3 Installation
PortaBilling100 MR16-3 Installation
Congratulations! The installation has been completed successfully.
The system will reboot now (be sure to remove any
floppies/CDs/DVDs from the drives).
<Reboot>

NOTE: Do not forget to enter BIOS again and change the priority of the boot devices so that the hard drive will be attempted first. (This ensures a quicker reboot when recycling the server.)

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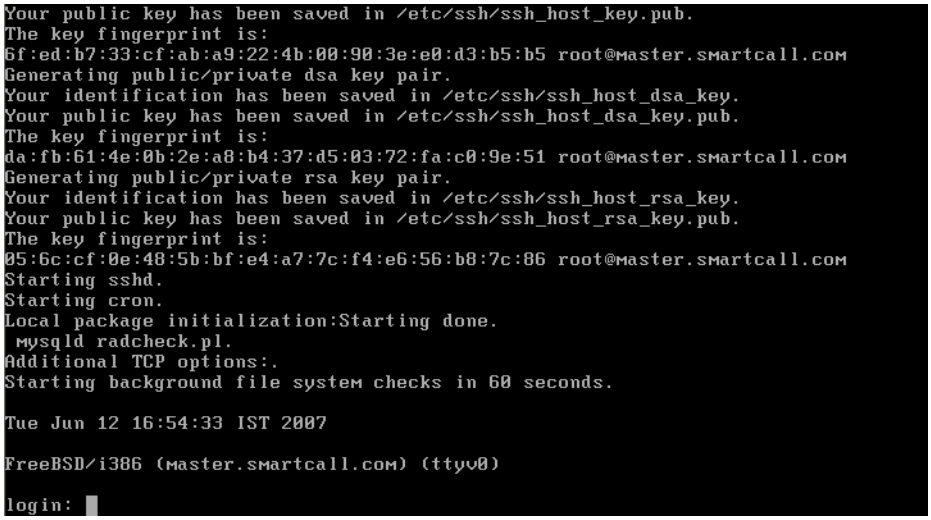
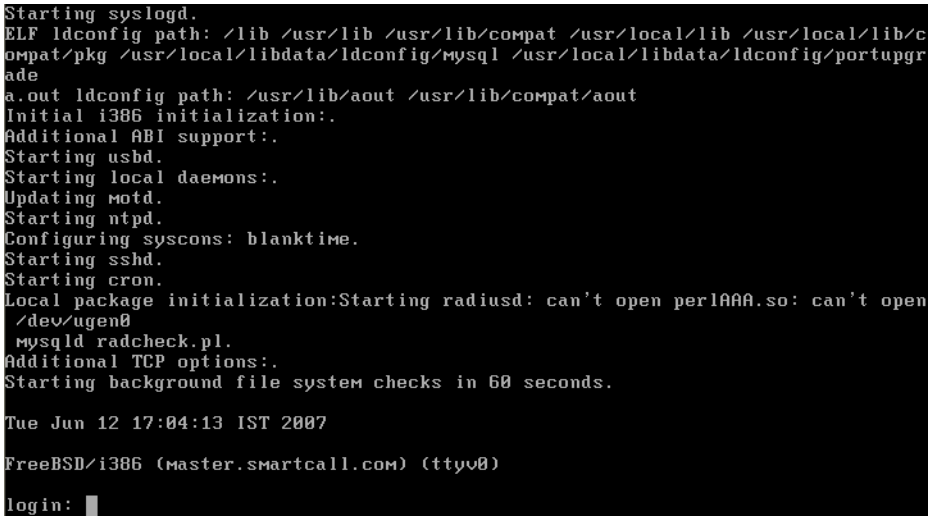
Step 16: Check If System Can Reboot to Normal State

It is good to make sure that the system is in a stable state, and that it returns to normal operations without intervention on reboot, especially if there is no keyboard or other peripheral attached. Following a normal reboot, the screen should look like this:


Your public key has been saved in /etc/ssh/ssh_host_key.pub.
The key fingerprint is:
6f:ed:b7:33:cf:ab:a9:22:4b:00:90:3e:e0:d3:b5:b5 root@master.smartcall.com
Generating public/private dsa key pair.
Your identification has been saved in /etc/ssh/ssh_host_dsa_key.
Your public key has been saved in /etc/ssh/ssh_host_dsa_key.pub.
The key fingerprint is:
da:fb:61:4e:0b:2e:a8:b4:37:d5:03:72:fa:c0:9e:51 root@master.smartcall.com
Generating public/private rsa key pair.
Your identification has been saved in /etc/ssh/ssh_host_rsa_key.
Your public key has been saved in /etc/ssh/ssh_host_rsa_key.pub.
The key fingerprint is:
05:6c:cf:0e:48:5b:bf:e4:a7:7c:f4:e6:56:b8:7c:86 root@master.smartcall.com
Starting sshd.
Starting cron.
Local package initialization:Starting done.
mysqld radcheck.pl.
Additional TCP options:.
Starting background file system checks in 60 seconds.
Tue Jun 12 16:54:33 IST 2007
FreeBSD/i386 (master.smartcall.com) (ttyv0)
login:

If you have not properly inserted the USB key, authentication will fail and the screen below will be shown:



Press **Ctrl + Alt +Del** if you need to reboot.

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Step 17: Prepare System for Transport (Optional)

If you need to transport the system to another location (e.g. hosting center), or otherwise power down the system safely, proceed as follows:

- Wait until the system finishes booting
- Log in as `root`
- Type `shutdown -p now`
- Wait until either the system powers down on its own, or the message "The operating system has halted" appears, and then power off the server.

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